

What is claimed is:

1. An arc discharge protection device for eliminating an arc discharge effect produced by an abnormal phenomena in a high-voltage output area having a power supply unit for supplying electric power, a control unit for providing a voltage distribution signal, a driving unit for receiving said power supply and voltage distribution signal, a step-up unit for receiving said voltage after the conversion and converting said voltage into a high voltage, and a load with a high-voltage output coupled to said step-up unit, comprising:
 - a voltage conversion unit, for receiving a high-voltage arc discharge signal released from said high-voltage output area and converting said high-voltage arc discharge signal into a low-voltage arc discharge signal;
 - a filter unit, for receiving said low-voltage arc discharge signal of said voltage conversion unit and determining a potential and filtering an abnormal frequency signal;
 - a rectify unit, for receiving said abnormal frequency signal of said filter unit, and outputting an arc wave clutter after performing the rectification;
 - a touch control unit, for detecting said arc wave clutter and outputting a trigger signal to stop the operation of one selected from the group of said control unit and said driving unit to prevent said arc discharge effect.

2. The arc discharge protection device according to claim 1,
wherein said filter unit is a low pass filter.
3. The arc discharge protection device according to claim 1,
wherein said filter unit is a high pass filter.
- 5 4. The arc discharge protection device according to claim 1,
wherein said filter unit is a band reject filter comprised of a
low pass filter and a high pass filter.
5. The arc discharge protection device according to claim 1,
wherein said voltage conversion unit uses a voltage divide
10 circuit comprised of a plurality of resistors.
6. The arc discharge protection device according to claim 1,
wherein said rectify unit is a rectify circuit comprised of a
diode and a capacitor.
7. The arc discharge protection device according to claim 1,
15 wherein said touch control unit is a silicon controlled
rectifier.
8. The arc discharge protection device according to claim 1,
wherein said touch control unit is a flip-flop.
9. The arc discharge protection device according to claim 1,
20 wherein said step-up unit comprises a transformer and a circuit
board.